

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua si bona norint
Agricolae." VIRG.

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AGRICULTURE.

We take great pleasure in laying the following letter before our readers, because we believe that they will not only find great pleasure in perusing it, but that the most of them may derive great advantage by carrying the opinions of our venerable correspondent fairly into practice.

[EDITOR.]

On Live Stock,

BY TIMOTHY PICKERING, ESQ.

SALEM, February 6, 1821.

Dear Sir,

VARIOUS incidents have delayed an answer to your letter on the subject of Live Stock, proposed to be imported from England, or elsewhere. I am much pleased with the liberal offer of some wealthy gentlemen in Baltimore, to "enable you to import individuals of the most approved breeds, to be placed upon your farm within a few miles of your city, where each variety may be kept distinct; thence to be disseminated through the country—and, by means of which, our native stocks may be crossed and diversified"—You request my ideas on this subject, and my advice as to what breeds, of any species, would be best calculated to improve the live stock, and by that means the agriculture of our country. I trust you will seek other and better sources of information; nevertheless I willingly contribute my mite.

Aware of the diverse and varying opinions which have prevailed on this subject, I have examined what English books I possess; and now give you the result of the review.

Arthur Young was a practical farmer, as well as a distinguished writer on husbandry. As to NEAT CATTLE, he says, the breed which first attained great celebrity, and became "famous throughout the kingdom," was that of Mr. Bakewell. But his primary object was, to produce cattle the most profitable for meat: on which, Mr. Young says he had many ideas which he believed then to be perfectly new. "The principle is, to gain the beast, whether sheep or cow, that will weigh most in the most valuable joints.—There is a great difference between an ox of 50 stone, [700 lbs.] carrying 30 in roasting pieces, and 20 in coarse boiling ones—and another carrying 30 of the latter, and 20 in the former. And, at the same time, that he gains the shape that is of the greatest value, in the smallest compass, he asserts that he gains a breed much harder, and easier fed than any others!" he asserts, "that the smaller the bones, the truer will be the make of the beast—the quicker she will fatten—and her weight will have a larger proportion of valuable meat: flesh, not bone, is the butcher's object."

The breed which Mr. Bakewell has fixed on, as the best in England, is the *Lancashire*; and he thinks he has improved it much, in bringing the carcass to a truer mould; and particularly by making them broader over the backs. The shape which should be the criterion of a cow, a bull, or an ox, and also of a sheep, is that of a hoghead, or a firkin; truly circular, with as small and as short legs as possible: upon the plain principle, that the value lies in the barrel, not in the legs. All backs which rise in the least ridge, are bad. I measured two or three cows, 2 feet 3 inches across the back, from hip to hip—and their legs remarkably short.

"In his breed of SHEEP, he proceeds exactly on the same principle as with oxen; the fattening in the valuable parts of the body; and the living on much poorer food than other sorts."—"This breed is origin-

ally *Lincolnshire*; but Mr. Bakewell thinks he has much improved it."

"He conceives the true shape of a CART-HORSE to be nearly that described above for an ox—thick and short bodies, and very short legs."

"A striking particularity is, the amazing gentleness in which he brings up these animals. All his bulls stand in the field to be examined."

"In the breed of his sheep, Mr. Bakewell is as curious, and I think, if any difference, with greater success than in his horned cattle: for better made animals cannot be seen than his rams and ewes—their bodies are as true barrels as can be seen; round, broad backs; and the legs not above six inches long."

In *Yorkshire*, Mr. Young says, the short-horned breed of cattle is common,—called the *Holderness* breed improperly, being really the *Dutch* sort. "They feed to vast weight, but are thought less profitable, both for the breeder, the dairy, and the grazier, than the true *Lancashire* breed."

About ten years after Mr. Young's Farming Tours, (from which the preceding extracts are taken) Mr. Marshall began his surveys of England, for the purpose of observing and registering every thing he should find important in the whole circle of husbandry. His information is the more valuable, because (having previously made himself a proficient in practical farming) he took up his residence for months and years in suitable stations of the several districts into which he arranged the various counties; and thus was the better enabled to compare the live stock and agricultural management of the several parts with one another—and, the ability and ingenuity displayed in his works, show him to have been well qualified for the undertaking.

Marshall very fully describes Mr. Bakewell's distinguished improvements in horses, cattle, sheep and swine.

He traces the origin of the *Leicester black cart-horse* to some mares imported from Holland; but the breed had, in the course of thirty years, been much altered in its form. "The long fore-end, long back, and long thick hairy legs, have been contracting into a short thick carcass, a short but upright fore-end, and short clean legs—it having been discovered, by men of superior penetration, that strength and activity, rather than height and weight, are the most essential properties of farm horses." The most useful horse he had seen of this breed, he thus describes: "His carcass thick, his back short and straight, and his legs short and clean; as strong as an ox, yet active as a pony; equally suitable for a cart or a lighter carriage:—a species of animal which, if it were fashionable as human food, would be full as eligible, for a farmer's use, as an ox of equal strength and activity."—"Another comparative advantage of the present improved variety, over the great, loose, heavy, sluggish sort of this breed, is its hardness; its thriving quality; its being able to carry flesh, or stand hard work, with comparatively little provender."

CATTLE "The breed of this district is the long horned; which, though traced in the origin to *Yorkshire*, and thence to *Westmoreland*, yet having been introduced in *Lancashire*, has, from the latter county, received its distinguishing name. It had been improved before Mr. Bakewell's day; but he brought it to its highest degree of perfection." The following is part of the general description of its higher class of individuals: The fore-end long, but light to a degree of elegance; the neck thin, the chop clean, the head fine but long and tapering; the eye large, bright and prominent; the horns long, but varying with the sex; bull's from fifteen inches to two feet; oxen's from two and a half to three feet long;

cows' nearly as long, but much finer—most of them hang downward by the sides of the cheeks, and sometimes would touch the ground, were not the points occasionally removed; the shoulders remarkably thin and fine as to bone, but thickly covered with flesh; the girth small, compared with the short and middle horned breeds; the chine full when fat, but hollow when low in condition; the loin broad, and the hips remarkably wide and protuberant; the quarters long and level; the nache of middle width, with the tail set on variously, even in individuals of the highest repute; the thighs in general fleshy, but tapering towards the gambrels; the legs small and clean, but comparatively long—appearing so more from the greatness of the carcass, than the positive length of the legs; the carcass as nearly a cylinder as the natural form of the animal will allow; the ribs standing out full from the spine—the flesh seldom fails of being of the first quality; the hide of a middle thickness; the colour various; the fattening quality indubitably good. "As grazier's stock they undoubtedly rank high—as dairy stock, however, their merit is less evident. Dairy women here and elsewhere bear witness against them."

Mr. Marshall remarks, that the protuberance of the bones of the hips was a point of the first fashion; but says, it was always mentioned in the language of enthusiasm, not of reason: that a wide loin, with the hips protuberant in fat, would be a most desirable thing—but that two knobs of bone can be neither ornamental nor useful. And he thinks it probable, that both in this and the short-horned breed, points of real importance have been given up for those fashionable knobs of bone.

He thinks as beasts of draught, this breed is not eligible—and that the enormous size of the horns of the oxen would invalidate all their qualifications, as working cattle, were they greater than they really are. In conclusion he says—"The utility of form has been strictly attended to; the bone and offal are small; and the fore-end [head and neck] light; while the chine, the loin, the rump, and the ribs, are heavily loaded—and with flesh of the finest quality."

In 1788, Mr. Marshall published his *Rural Economy of Yorkshire*. The prevalent breed of cattle, at that time, in the Vale, was the *short-horned*—originally a very clumsy breed: but it had been greatly altered and improved, "not by foreign admixtures, and unnatural crossings, but by choosing the cleanest and best fleshed bulls and heifers from among their own and their neighbour's stock"—But he says "a variety new to the Vale was then crossing into it—the *Teeswater* breed—a variety of the short-horned species. It was established on the banks of the *Tees*—and appeared to be a most valuable breed of cattle—valuable to the grazier and butcher: the bone, head and neck fine, the chine full, the loin broad, the carcass throughout large and well fashioned."

"The favourite points of a milking cow in the Vale, are a thin thigh; a lank, thin-skinned bag, and hanging backward; teats long, and sufficiently free of milk without spilling it; dug veins large, and horns yellow. I will not vouch (says Marshall) for the infallibility of all these points; but this I will say, that I never noticed a cow with a thick fleshy thigh, which was a good milker."

Mr. Marshall describes the *Sussex*, *Devonshire* and *Herefordshire* breeds, as agreeing in almost every essential character. The famous cow of Mr. Cramp of *Sussex*, in England, was of the *Sussex* breed. In five years (1806 to 1810 inclusively) she yielded 24,428 quarts of milk, from which were made 2725 pounds of butter, averaging 545 pounds each year—a small fraction less than 9 quarts of milk yielding a pound of butter. She usually gave milk till within two or

three weeks of her calving—sometimes till she calved. Her food was abundant, succulent, and of various kinds; given a little at a time; and enticing her, by the variety, to eat the more, and without waste.

In my discourse, read to the Agricultural Society of Essex, (which you republished in the American Farmer) I quoted from Sir John Sinclair, some of the opinions of that distinguished naturalist and practical Farmer, Thomas A. Knight, esq. in answer to some questions of Sir John. In one of his answers he says—"I have found the food animals generally require, to keep them in proper condition, is much more nearly proportioned to their height and length than to their weight." In confirmation of this opinion, he adds, that a neighbour of his made a comparative experiment with the Devon and Hereford cows; and, though fond of the former for their neatness, he gave them up, because "they would not nearly live on the same food which supplied animals *stouter and more compact*, of the same weight." To the question, "What is the best shape for feeding well [fattening] with little food?" Mr. Knight answers—"The more deep and capacious the chest, and the shorter and lower any animal is, relative to its weight, the better adapted it will be to live and fatten upon little food; the more labour it will also go through; and I have always found the most short legged oxen to be the best labourers. Mr. Marshall also observes, in his Rural Economy of Gloucestershire, that the best labouring ox he ever saw, had the shortest legs." Mr. Knight objects to the Devon breed, because too long and too high.

Mr. Marshall made his agricultural surveys, of the greater part of England, from the year 1783 to 1789; and in that period had seen and minutely attended to the various breeds of cattle in the districts he had visited—and gives the preference to the Hereford breed in the following words: "The Herefordshire breed of cattle, taking it for all in all, may, without risque, I believe, be deemed the first breed of cattle in this Island." "In general appearance, the Herefordshire cattle resemble very much those of Sussex, except in their superior size; and still more, nearly the present breed of the Vale of Pickering, [the improved short-horned breed of Yorkshire before noticed] their frame is altogether *athletic*, with the limbs, in most cases, sufficiently clean for the purpose of travelling. The form of many of them, as beasts of draught, is nearly complete. Besides their superiority, as beasts of draught, and their being eligible as dairy stock, (being in this respect similar to those of Gloucestershire) the females, at least, fat kindly at an early age; the strongest proof of their excellency as *fattening cattle*. I have seen three years old heifers of this breed—to use a familiar phrase, "as fat as mud;" much fatter than heifers of that age, I have seen of any other breed—the spayed heifers of Norfolk excepted." "How unfortunate then [he exclaims] has been the choice of the spirited breeders [Bakewell and others] of the Midland counties! With a small share of the attention and expense that have been bestowed on the long-horned breed, some other breeds, he thinks, might have been rendered equally, or still more profitable, as milking and grazing stock—and, at the same time, have been fit for the purpose of draught; a use for which, not the horns only, but their general frame unfits them. The breed of long-horned cattle, *naturally*, he says, is perhaps the worst the country ever knew. He adds, "The long-horned cattle, in a state of neglect, might, in figurative language, be called creatures without carcass; all horns and hide. With every assistance which genius and spirit can give them, they are barely, if at all, superior, even as grazing [fattening] stock, to other breeds which have remained in a state of comparative neglect."

Sir John Sinclair informs us, that a good Herefordshire bull sells for £60 or £70. One 4 or 5 years old for £40. A calf for £10 to £20. And that Mr. Knight refused 30 guineas, for a perfectly good calf seven weeks old.

In 1797, Mr. Marshall closed his agricultural surveys, with the Southern Counties of England. He mentions a patriotic work carrying on by Lord Egremont, with unequalled zeal, and on a broader basis

than that on which it had before been pursued, in any part of the Island. "His Lordship having no confined view to direct him, nor any narrow prejudice to warp his intentions, has blunted provincial jealousies by indiscriminately selecting from the three *kindred* breeds, of Sussex, Herefordshire and Devon, individuals of the first quality—and breeding from these as from one and the same stock, keeping steadily in view the three essential qualifications of cattle, namely, *Working, the Dairy, and Grazing*." Mr. Marshall predicts a lasting benefit from this plan—"there being no other established breed in the Island equal to those under notice, for the three essential purposes of cattle."—If I rightly recollect, some of the gentlemen at Mr. Coke's sheep shearing at Holkham, (as published in the American Farmer) expressed opinions concerning the long-horned breed of cattle, similar to Mr. Marshall's—and in favour of the Herefordshire breed, as a better stock on which to raise improvements.

The Teeswater breed may, perhaps, have been much improved, since Marshall wrote: for Sir John Sinclair, in some of his works, written within six or eight years past, mentioned a bull of the short horned breed, which had been sold for a thousand pounds; [£444.] and a heifer for a thousand guineas; [£5106.] and that one hundred guineas [£466 2-5] were often given for a calf a month old, of the improved Teeswater breed of short horns. But I am inclined to think that *Fashion*, swayed by real or fancied beauty of form,—infinitely more than increased utility, raised any of the breed to these enormous prices. Time was when a Dutchman would give two thousand dollars for a tulip root. In the admirable journal of a tour and residence in Great Britain, during the years 1810 and 1811, by a French traveller (Mr. Simond of New-York) I met with the following remarks, on the Cheshire cows. Observing that cheese making is a principal object of rural economy in Cheshire, he says "There seems to be a great diversity of opinion, among the farmers of that county, respecting the best breed of milch cows, and the most promising make and colour. Upon the whole, it rather appears, that the *least handsome are the best*: a lesson of morality is thus furnished by the cow stable." Beauty of form, however, in a cow, is not incompatible with her being a good milker; although, as in a higher order of beings, it often gains admirers, to the neglect of intrinsic worth.

Upon the whole, I do not hesitate to express my opinion,—That of NEAT CATTLE to be imported from England, the most improved Herefordshire breed is entitled to the preference—unless the stock patronized by Lord Egremont in Sussex, to be raised from an union of the Herefordshire, Devon and Sussex breeds, should answer to Mr. Marshall's high expectations, and can be procured.

I have gone so much into detail on the *principles* which have guided the most celebrated English Breeders, and in describing the *products* of their ingenuity and attention,—not merely to contribute to the instructions which it may be proper to give to the agent who may be sent to England to procure cattle; but also because these details may be useful in guiding the choice of individuals of our *native breeds* on which to build improvements. And I am not sure but that such selections might be made, by judicious agents who should traverse those of our states in which cattle form a principle object of husbandry, in reference to *labour, the dairy, and beef*, as would render of less consequence, importations from Europe. I have not met with an account of any English cow surpassing in valuable product that of Caleb Oaks, in my neighbourhood, for which the first premium was awarded to him at the Cattle Show, at Brighton, in 1816. In that year she calved the 5th of April [Editor's Note: see next article.] On the 8th of May the calf was killed, being remarkably fine and fat veal; and by the 20th of December following (32 weeks) her milk (after deducting about one quart daily for the use of the family) yielded 467 pounds of butter; and 17 lbs. while she suckled her calf. Yet she was considered, by some who viewed her, as below the middle size. Comparing her, in the succeeding year, with a large fine looking cow of

English blood, when I saw them feeding together in the same pasture, I should think the former would weigh but about two thirds as much as the latter; while the Oaks cow gave twice as much butter weekly; that is 32 pounds in two weeks; the cow of English blood only 16 pounds; both put, during the two weeks, upon precisely the same food, by way of experiment. Mr. Oaks gave his cow a bushel of Indian corn meal weekly, stirred morning and evening into her own skimmed milk. Mr. Cramp, in the summer season, fed his cow with clover, lucern, rye, grass, and carrots, three or four times a day, and at noon time with four gallons of brewers' grains, and two of bran mixed together; always observing to give her no more food than she ate up clean. In the winter season he fed her with hay, grains and bran mixed as before; feeding her five or six times a day; giving her food when milking. Mr. Cramp's great quantity of butter, annually was the product of the whole year; Mr. Oaks' of only eight months and a half.—Mr. Oaks' cow probably appeared the smaller to spectators, because of her low stature, her legs being short.

Marshall says, that in Gloucestershire "the *point* of a milch cow principally attended to, and which no doubt is the main object of attention—is a large thin-skinned bag."—A few years ago I asked an old observing neighbour, what marks determined his choice of a milch cow? "I look, (said he) to the bag; if that be large, and the teats far apart, I am satisfied."—The Oaks' cow has a large bag, and her teats are far apart—the natural result of a large bag,—particularly when extending forward, like hers, far under the belly.

I had like to have forgotten the Scotch Galloway cattle without horns, which are mentioned as an excellent breed. "They lay their fat upon the most valuable parts, and their beef is well marbled or mixed with fat." They are said to be "very good milkers, in proportion to their size, and their milk of a rich quality; yielding much more butter from a given quantity of milk than the short horned. And it is also said that the oxen and spayed heifers answer very well for the draught."

Marshall's description of this breed is as follows: "The Galloway cattle are large, thick, short-legged, mostly hornless, and of a black or brindled colour: the flesh well grained; and the form altogether beautiful: chine full—back broad and level—quarter long and full to the nache—round barrel—deep girth—and the bone, head and chap, in general fine."—Among the numerous herds of these cattle, driven annually into England to be fattened, are some mongrels, the produce of crosses with some English breeds; effected, it is said, by the land proprietors—"but (says Marshall) the fact appears to be, that they have already one of the first breeds of cattle in the world upon their estates; and it behoves them to hand it down to posterity as pure as they received it. In this age of improvement, it might be laudable to improve it to the utmost; not, however, by foreign admixtures; but by giving the most beautiful females to the most beautiful males of their own breed. They appear to me to have much to lose, but nothing to gain, from crossing."—This last remark of Marshall, inclines me still further to think it advisable to search for the best of our own breeds, and from them to raise improved stocks: not to the exclusion of European cattle: though I am far from thinking the large breeds (which seem to be the general object of importers) the most eligible; except for those parts of our country that can furnish *rich grazing lands*. For the rest, cattle of moderate sizes would unquestionably be the most profitable.

The quantity of milk given by a cow, of any breed, should not by any means, be a guide in the selection, unless in union with its quality. Nine quarts of Mr. Cramp's Sussex cow's milk produced one pound of butter: whereas the best of the Lincolnshire breed (as mentioned by Mr. Young in his East of England) giving six gallons of milk a day, yielded only 7 or 8 pounds of butter a week; or at the rate of one pound for 21 to 24 quarts of milk. The Oaks cow is extraordinary, not for the quantity, but the quality of

her milk. Mr. Quincy, to whom she now belongs, informs me, that he has often known one pound of butter to be made from five quarts of her milk.

As to sheep, I cannot think it necessary now to import any. We have merinos in abundance; and some of Bakewell's breed. From these and the finest of our native stocks, I have no doubt that judicious breeders might produce races adequate to all our wants and wishes.

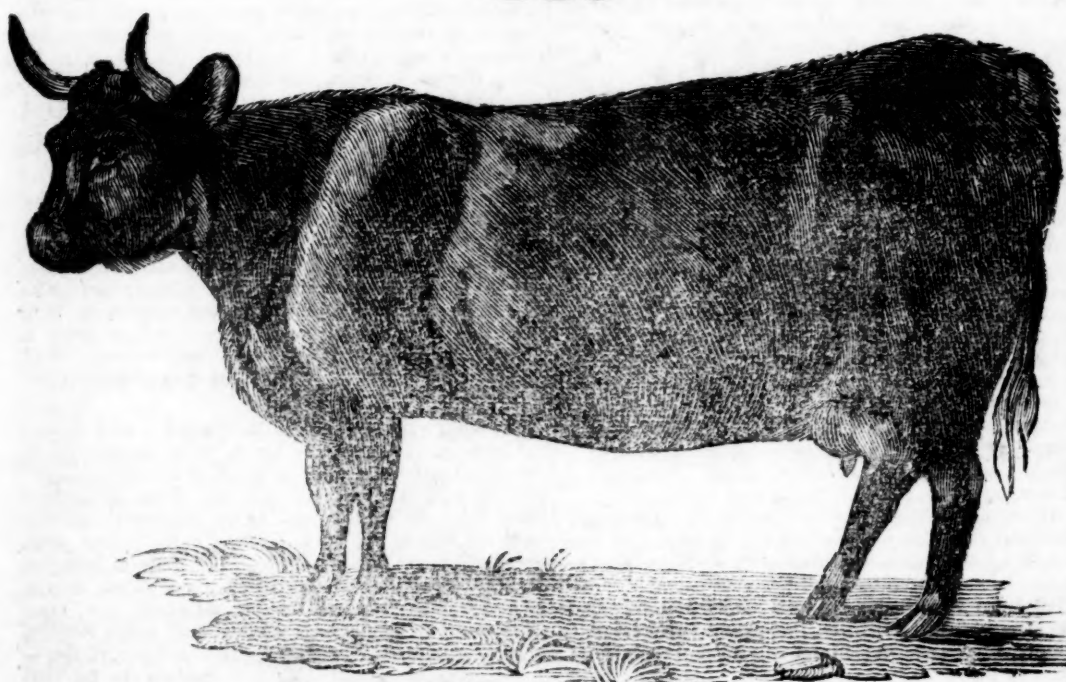
I entertain the same opinion concerning swine.—It appears by the practice of the distinguished English breeders, that by judicious crosses of the best individuals, of same families, the forms and characters of all domestic animals may be so changed as to furnish all the desirable qualities which, in the nature of things, are attainable.—The great desideratum is, adequate encouragement, by high prices for highly improved animals—or establishments (like the one proposed which has given rise to these observations) in many of the states, under the conduct of judicious, industrious and faithful men, who should be authorized to dispose of the improved animals, at increased prices indeed, but such as would not deter substantial farmers from purchasing them. Farmers so established for breeding, might also be made *patern*

farm for agricultural experiments. And to ensure success, practical farmers of distinguished intelligence and fidelity must be allowed, in addition to reasonable compensations for the exclusive application of their time and faculties to the business, a certain portion of the profits on the sales of the increased stocks and of the time of the males not sold.

The numerous communications to the "American Farmer," especially from agriculturists who farm on a large scale; whose sole, or at least whose principal occupation consists in the management of their own lands; and from others addicted to agricultural inquiries and pursuits; and who manifest that spirit for improvements which now appears to be pervading all the Old States, where Old Grounds demand superior skill and management for their renovation, have already given to your paper deserved reputation; and I persuade myself that from the same sources, and your own persevering diligence and ability, it will be rendered of great and increasing utility to practical husbandmen.

I am, dear sir, with great regard,
your obedient servant,
TIMOTHY PICKERING.

JOHN S. SKINNER, ESQ.



THE DANVERS PRIZE COW.

[From the Mass. Agricultural Repository and Journal.]
LETTER RESPECTING THE DANVERS PRIZE
COW—BY E. HERSY DERBY, ESQ.

SALEM, December 25, 1816.

Dear Sir,

I FORWARD you, agreeably to the request of the Trustees, the information I have obtained respecting Mr. Caleb Oakes' Prize Cow.

The Cow is of a dark Red, and rather under size. She was first purchased out of a drove. Mr. Oakes bought her, in April, 1813, of his brother-in-law, at which time she was 5 years old. He made from her, the first year, without any extra feeding, 180 lbs. of butter. In 1814, he gave her about 10 or 12 bushels of meal, and made 300 lbs. of butter. In 1815, he allowed her 30 or 35 bushels of meal, and the quantity of butter made was over 400 lbs.

Last spring I called on Mr. Oakes, and requested him to keep a particular account this year of the product, in milk and butter, which he has been so obliging as to furnish me. She calved the 5th of April. The calf was killed the 8th of May; being remarkably fine and fat veal. Through the season she has had good pasturage, and has been allowed one bushel of meal per week, and all her skim milk. Some time in June or July, Mr. Oakes weighed the

milk—at which time she gave, at night, 10 quarts, weight 26½ lbs.—7 do. in the morning, weight 18 lbs. making 44½ lbs. of milk per day.

Statement of the Butter made this season.

Before the calf	July 17 16	October 2—16½
was killed, 17 lbs.	24—16	15—15
May 15—24½	31—16	21—16
22—16	Aug. 7—15	29—16
28—17½	14—15	Nov. 7—16
June 5—19	21—16	18—18
12—18½	28—15	23—10
19—17	Sept. 4—15	30—13
26—18	11—16	Dec. 10—14
July 3—18	18—12	20—10
10—17	25—15	
		TOTAL, lbs. 484½

Since Mr. Oakes has had the cow, she has suckled four calves, over four weeks each, and furnished about one quart of milk per day, for the use of the family. I purchased of Mr. Oakes some of this year's butter, I think I never saw finer.

I am, &c.

E. HERSY DERBY.

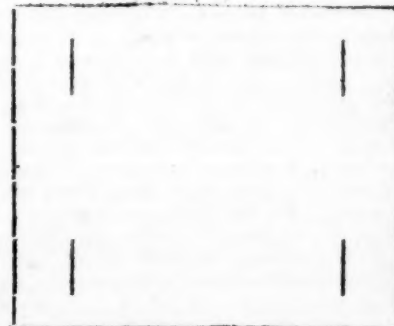
Note.—December 28th, 1816; eight quarts of milk per day.

SALTED HERRINGS GOOD MANURE FOR CORN.

Dear Sir,

I OBSERVE in the Farmer of the 10th, an experiment made on Salt, as a manure for corn; and, as the result is contrary to an experiment which I made, I send you an account thereof.

I made this spring 20 holes, one foot deep, and a foot square. Into the 4 first holes I put three inches of the dirt that came out of the holes—and then 4 rotten salt herrings of the year before; thus:



Afterwards, and alternately, 3 inches more earth, and 4 more herrings, until 12 herrings were put in each of these holes; in the next 4 holes I put only 8 herrings in like manner; in other 4 holes only 4 herrings—and on the next 4 holes, after returning the earth, I fixed 4 herrings on the surface: in the remaining 4 holes I only returned the earth, and then planted them all with corn. The next day I made 4 additional holes; manured them, and planted them with corn: when the plants were 6 inches high I drew the worst out, so as to leave 3 of the best stalks in each hill. The result now is—the corn on the hill containing 12, 8, and 4 herrings, and also on the manured hills, is very fine—that on those upon which the herrings were fixed, as well as upon those not manured, is but tolerable; and, compare with the other, in about the proportion of five to three. I was agreeably and much disappointed, as I was confident that the corn on the hills, which contained 12 and 8 herrings, would have been killed with the salt.

Your's very respectfully,

JOHN THRELKELD.

FOR THE AMERICAN FARMER.

Agricultural Chemistry.

August 7, 1821.

MR. SKINNER,

I shall take the liberty of noticing a few expressions and opinions relating to Agricultural Chemistry, contained in your paper, from which false inferences might be drawn, and error the more readily propagated, from the well deserved high characters of the several writers.

Judge Peters, in his excellent "Notices for a young farmer," (Am. Far. vol. 1. p. 66) when speaking of the sorrel, says—"Lime is the only remedy: and you will see in Lord Dunsford's Connexion, &c. the good effect of lime, which

destroys the sorrel, and produces the sorrel line acid, highly friendly to wholesome and profitable vegetation. This is incorrect, both as to the action of lime, and in ascribing such opinions to Dundonald. Lime can produce no acid, but destroys all—and if the sorrel line or oxalic acid was present, the new compound produced by the application of lime, would be the *exalate of lime*, to which I suppose Judge Peters meant to attribute fertilizing qualities. I have but little doubt of the correctness of this last opinion, but it is not sustained by the authority of Dundonald, who supposes the insolubility of *exalate of lime* to render it incapable of aiding vegetation.

The "Treatise on Agriculture," ascribed to Gen. Armstrong, gives a method of analysing soils, which it states, was recommended by the French chemists, for the use of the farmers of that country. (Am. Far. vol. 1, page 171.)—This method is so stated, that if it is not both defective and erroneous, it is at least unintelligible to me, and probably to most of the farmers, for whose instruction it was intended. After separating the *finely divided matter* from the sand, and ascertaining their respective proportions, the former is directed to be "*calcined*," and "the quantity lost, will show the proportion of animal and vegetable mould contained in the soil." If the word "*calcined*" here means using a degree of heat, as great as that to which the term is frequently applied, the process would decompose the carbonate of lime, and the loss would include its acid constituent, with that of the combustible matters. To this calcined earth, and to the sand previously obtained, we are directed to "apply, separately, sulphuric acid, and what they respectively lose in weight, is the portion of calcarious, and aluminous earths contained in them. These last may be separated from the mass by soap lye, which dissolves them." Sulphuric acid, so far from removing calcarious earth, converts it into gypsum, and rather more than fifty per cent would be added to its former weight; and the greater the quantity actually contained in the soil, the less would appear in the result. What increases the confusion, is the direction to separate the calcarious and aluminous earths, by dissolving (both of) them in soap lye. It is usual to separate two substances, by adding some liquid which will dissolve one and not the other—but separation cannot be produced by subjecting both to the same action. I would gladly be informed what the test 'soap lye' is, which is mentioned here, and in Davy's Agricultural Chemistry, without explanation. If it is the lye of wood ashes, the same chemical properties, freed from impurities, would be found in a solution of carbonate of potash, which will not dissolve calcarious earth, either before or after the application of sulphuric acid.

Dr. Muse, in his paper "On the modus operandi of Plaster of Paris," (Am. Far. vol. 1, page 338,) has presented ideas which have a greater value than that of merely being new; and the objections which he urges to all the elder theories, are fully sufficient to put them at rest. But I think he has failed to furnish a more satisfactory solution of this difficult question. His theory is, that "The chief, if not the whole cause of the efficacy of gypsum in pro-

moting vegetation, is to be found, in its tendency to become phosphoric. The truth of this proposition fairly rests on the result of three enquiries.—Does gypsum become phosphoric? Does phosphorus exist in vegetables? Do phosphates promote vegetation?—Let each of these questions be answered in the affirmative, and admit as correct all the authorities quoted, including even the unfounded assertion of Dundonald, that [all] "the insoluble part of vegetable ashes is phosphate of lime"—and still the theory will fall, by proving too much. If the value of gypsum consists in gradually changing to a phosphate, then the phosphate of lime itself applied in as small a quantity, would act as powerfully, and with more quickness; and it follows, that about three bushels of pounded bones, or four of drawn ashes, would produce as much benefit as two bushels of gypsum. As valuable a manure as phosphate of lime certainly is, I presume that no such effects as these are attributed to it. According to this theory, all these manures ought to be equally efficacious, or equally useless, on the same soils—yet in England, where bones are used most extensively, gypsum has not been found profitable; and in New-York, ashes are not worth using, where gypsum acts well, and are carried 170 miles to manure lands on which gypsum will produce no benefit. Again—all vegetables, and of course all soils are said to contain phosphate of lime; and whenever its presence can be detected by analysis, the quantity cannot be so small per acre, as a sufficient dressing of gypsum. As the action of the latter is not increased by applying more than three or four bushels per acre, it follows, that it never could act at all, if a greater quantity of another substance having the same powers, was always present. The phosphate of lime is known to differ from gypsum in this respect: it is most abundant in manured land, and yet Professor Davy, (as stated by Dr. Muse,) states that bones are found to be very beneficial, on the highly improved lands near London.

From the address of Robert Smith, esq. to the Maryland Agricultural Society, (Am. Far. vol. 2, page 228) it would appear that *calcarious earth* forms a proportion of much the greater part of our soils. In all clayed, sandy, and gravelly loam, it is specified as an ingredient, nor is it stated to be absent in any. To most persons who are well acquainted with European descriptions of soils, the correctness of Mr. Smith's opinion will appear so certain, as to leave no room for doubt or inquiry. But I have strong reasons for being doubtful, unless it is sustained by carbonate of lime, having been found thus generally present, by the actual analysis of soils. If this is the case, Mr. Smith would render a service to the public, and add much to the force of his reasoning on calcarious manures, by furnishing an account of the compositions of such soils, as he may have ascertained. Your correspondents frequently, in general terms, have treated of the constitution of soils, and the different kinds of improvement suited to each; yet your three volumes do not present a single analysis of soil, nor does it appear that the least attention in this country has ever been paid to this very important subject.

N. F.

THE RIGHT TIME TO FELL TIMBER.

WASHINGTON, Aug. 10th, 1821.

SIR—The hasty observations thrown together the evening before my departure for Norfolk, do not, I fear, contain all the information desired, with regard to the "proper season for felling timber, with a view to its durability;" indeed the subject is a fruitful one, and requires more investigation than circumstances will allow me to give it.

It is a subject of the utmost interest to mankind, and deserves the attention of the farmer as much as any other that comes under his observation. Exhausted fields may be made fertile—degenerated stock may, in a few years, be restored to their former excellence; but it requires ages to repair ravages of a few weeks on our forests, and we have hitherto unavailingly regretted the rapid decay of fences which confine our stock to the pastures, and protect that produce to which we owe our subsistence. The instant the tree is felled decay commences, and the lapse of a few short years requires that other trees should be destroyed to perform the offices to which the first were devoted. To subserve the purposes of man for the brief space of ten or a dozen years, we thus go on from day to day, destroying the work, which required nature centuries to perform.

The rapidity with which we now convert majestic forests into dreary wastes, the approach we daily make toward that condition of Europe, which makes economy in the use of wood, so necessary merits the consideration of all classes of men. If it is of importance to construct at great trouble and expense, ships, houses, machinery, fences, and farming utensils, surely the preservation of them is of equal importance, and it is worth inquiring at the outset, whether in consequence of the period of cutting the timber, of which they are made, the term of their duration will be either ten, twenty, thirty, or forty years; whether we shall have to renew these things three or four times during our lives, or hand them down in sound condition to our grand children.

The impairing of our forests is a national, the renewal of the articles an individual loss—we must look upon them as an indispensable means of national protection, and an important source of national wealth. Every waste of these precious materials is a voluntary destruction of an important source of future riches. A young and thriving tree is said to increase fifteen per cent per annum—to increase, too, without expense or cultivation; and if this be true, what can we find more profitable than a forest? We generally consider 6 per cent. a fair return for our money, and what farmer does not feel himself fully compensated by an interest of from four to five per cent. on his capital employed in farming purposes? It is well known that farmers cannot usually afford to pay legal interest on money borrowed.

A forest is the best inheritance a father can leave to his children; for, while all other property is diminishing in value, its value increases, by its natural growth, and by the materials which it furnishes, becoming daily more and more scarce, and of course commanding a higher price. A small tree which we cut down to make a single post for a fence, worth 15 or 20 cents, would in a few years form one of the largest timbers of a line of battle ship, and be worth, delivered at our Navy Yards, upwards of a dollar per cubic foot. A live oak arrives at maturity in about half a century. These important facts and considerations merit, as they have received the investigation of men of science. Chymistry and botany, may be both brought in aid, but to a knowledge of these, as I before observed, I have no pretensions, I rely upon facts universally known and admitted, and such as are familiar to men in every situation in life. Abstract researches I do not aim at, well knowing that I have neither the talents nor the time to make them.

In my former communication I gave my opinion as to the period best suited for cutting timber, with a few remarks as to its preservation, when applied to farming purposes. I now take the liberty to send you in corroboration of my views, a translation from a French Nautical Work, written by Lescaulier—I do not know whether it has before been translated into our language, but the subject of which he treats, is as

interesting to the farmer as to the shipwright; and I believe that it will be perused with attention by most of your readers. In France, the subject has attracted more attention than in any other country; although, every government in Europe has enacted laws for the protection and preservation of the forests. But France, dependent as she was on her own resources, for the timber necessary to construct the Navy, which was destined to combat that of England, was driven to the necessity to husband them by every means within her power, so long as her adversary commanded the ocean, and had the forests of the world at command. France, by her system, has preserved the forests, and still continues to obtain her supplies from them, while for ages past, in England a venerable oak, most probably from its rarity, has been celebrated for affording protection to a king, or has furnished traditional lore for fairy tales—Hermes Oak is immortalized by Shakespeare; and Windsor Forest, of the size of a Pennsylvania farm, is the pride of England, and the subject of one of the most beautiful poems in the language.

Between 1636 and 1696 British timber became so scarce as to compel England to resort to foreign supplies, and it was in 1669 that France established those ordinances for the preservation of her Forests, which have continued in force ever since.

They require that all timber shall be cut between the 15th of September and the 15th of April inclusively, and the penalty for the first offence, by proprietors as well as others, in violating this ordinance, is a fine of 300 francs and confiscation of the timber; for the second, the addition of six months imprisonment; and for the third, the punishment is discretionary with the king; and in all public cases, it is enjoined on the contractor that the trees shall be felled on the decrease of the moon.

My desire to answer your inquiries is my only apology for this second communication; and my wish to elicit further information, is my principal motive for making it. With sentiments of respect, your obedient servant,
D. PORTER.

ON THE PRESERVATION OF TIMBER.

By "Lescallier."

Timber is the first and principal material, without which it is impossible to have a navy: too much attention cannot be paid to whatever will improve the management, or production of this article, and above all tend to its preservation.

The preservation of timber is as essential as its very existence, for if ships cannot be preserved longer than ten years, the expense of continually rebuilding, would be enormous, and nature would finally cease to furnish those immense plants, which require centuries to grow, and are cut down in one day.

If there be any means to make timber last double the length of time which it commonly does, it ought to be employed, though it were an expensive one; for in that case, not only half the expense of building, and the greater part of that of repairing ships, would be saved, but the forests would be treated more sparingly, which is, in our opinion, by far more essential than the economizing of money.

Long ago, endeavors were made in different quarters, to discover the most proper method of preserving timber; it appears, however, that this object has not yet been accomplished in a satisfactory manner.—Timber, for the purpose of preserving it, has been put into fresh, into salt, and even into stagnant water; it has been interred in sand, in mud, and in spite of all these precautions, we see every day, to our great sorrow, that ships are rotten, before they have been of hardly any service, whilst other timbers last sometimes forty years. Some persons accuse the fellers of the trees for not having observed the proper time of the moon, others laugh at the pretended influence of this planet and none of these opinions are universally approved. Researches can only be made successful by following nature, from which we too often stray.

Timbers, cut in good or bad season preserve a great or small quantity of moisture. Some of it re-

mains especially in the interior of the logs, though the outside of them may appear perfectly dry, and after they have been kept for some time. This moisture, which derives its origin mostly from the sap, contains a great deal of acid, of a fermenting quality and consequently favorable to produce the rot.—It is this moisture which must be attacked and driven from the heart of the timber. Dryness alone will render it solid and durable.

We think it is by no means advantageous to the timber to lay it in the water, for the purpose of preserving it. Water is a dissolvent which in time penetrates and rots most things. Seawater, though possessing this quality in a less degree than fresh water, still has it in a great measure.

It has been observed that the British do not immerse the timber in water for the purpose of preserving it. It is the same with several other maritime nations, who use a great quantity of timber and possess considerable knowledge respecting it. We do not see that in the various foreign naval establishments, it has been thought proper to resort to this means. The best and most proper way, known at the present day, to preserve timber, appears to be that of keeping it under well constructed and airy sheds in a vertical position, so that the moisture, which remains in the interior of the logs, may in following the course of the fibres, be enabled to issue from the lower end.

We perceive that wood employed on land for beams in houses, and other objects, kept dry and under shelter, will preserve itself for ages. We likewise see pieces of furniture made of various kinds of woods keep still longer, because they are dry and under shelter; and because they are made of wood which the cabinet makers instructed by experience, took care to saw into thin pieces to let them dry a long time, and even get old, before they made use of them.

Why should not our ships, which are constructed of the same materials, last equally as long, or at least much longer than ten years?

We see the British construct the frames of their vessels, and leave them in that state, to dry a long time on the stocks, under the shelter of great awnings, before they finish them completely. Moisture destroys the timber, and dryness preserves it. If a vessel has been constructed in a hurry, with green timber, it will be found to be rotten before it has rendered any service; whereas if constructed with precaution and with the driest and oldest timber, it will last perhaps twenty years, without any other attention being paid to it than that of the ordinary and common kind.

Timber, not only rots when it has been used in its green state or exposed to humidity; but it is likewise injured by the effect of insects which find their way into it.

The cause of the destruction of timber in its primitive state, is the sap, a kind of acid fluid of a fermenting quality. Part of this fluid will always remain in the interior of large logs; this can easily be perceived when they are examined after being sawed through the middle.

When the wood is in its green state, water operates on it as a most powerful dissolvent. The atmosphere, fresh and salt water—all are respectively filled with different species of insects, inimical to the wood. They work themselves into it—know it and generate in it.

The water in which the timber is kept, will destroy one or two kinds of insects, but it often introduces others by far more dangerous.

Water seems to be favourable to the decomposition of the sap in the timber immersed, but it substitutes in its place another kind of moisture, not less destructive, of which the timber, though afterwards exposed to the free action of the air, will not easily get clear. It weakens and destroys the grain of the wood.

If then the sap, the moisture in the interior, together with the insects could be disengaged from the timber, it would last for any length of time. This is clearly seen in some of the foregoing observations, and may be seen in many others of the kind, of which we shall only mention the most important.

The timber in hot climates under the torrid zone justly bears the title of incorruptible. One of the causes which renders it harder and more durable, is probably the continual heat in those climates which dries it quicker and with more effect. Without going out of Europe, what difference do we not perceive in trees of the same kind? what difference between the Oak of Provence, and that of Bourgogne,—between the oak of the dry, warm and mountainous country of Calabre and that which grows in the marshy land of Tuscany or the north of Europe? Some last at least as long again as others do.

When a tract of land is to be fenced in, the ends of the stakes which are to be fixed in the ground, are laid in the fire for a length of time; and thus completely dried, they never rot.

This custom is observed by the Russians, who are well acquainted with the nature of wood. In fact this is the only way in which they build their houses in the interior of the country. This process has likewise been applied with success, in the construction of vessels, to the heads of beams, which are much exposed to the effect of humidity.

When cabinet makers and cartwrights wish to make good work, they are not satisfied with having allowed the wood to dry a considerable time; but they dry it over again artificially near the fire.

The savages of America burn the ends of sticks to a point, and render them by this process so hard, that they answer the purpose of iron lances.

When any vessel or frigate is examined on her return from a cruise, the timbers nearest to the galley, dried by the action of the fire, will always be found to be excellent and perfectly sound.

The timbers from vessels that have been broken up, especially those of the hold, or other places under cover, have acquired a most excellent quality, and last sometimes much longer than new timber; a fact well known all over the world.

When we lay a piece of green wood in the fire we perceive a considerable quantity of moisture issuing from it, and when, after leaving it in an equal fire, without burning it, it is taken out in order to examine its quality, it will be found to be infinitely harder than it was before it was put in.

This operation with respect to navy timber ought to be made in a more precise and studied manner, namely, to dry it and destroy all interior principle of the rot, by the slow action of an equal fire, before it is piled away under sheds.

There ought to be built in every yard, a great oven square and flat, with several fire places underneath, in order to keep up a sufficient degree of heat, say of 45 to 48 degrees, to dry the timber very slow without causing it to crack. This oven ought to be large enough to hold a number of pieces of timber. They ought to be left in it, eight, ten, or fourteen days, more or less, as their size and dimensions shall require or well made experiments direct. This process will drive out the air contained in the interior and extract the acquired moisture as well as the Sap, and render them sound to the very heart, by also destroying the worms or other insects, which may have found their way into them. Timber in this state, being less exposed to external injury, will probably last a very considerable length of time. Until it should be thought ready for use, it ought to be kept under sheds, which must be well aired from the warm and dry side, bearing always in mind, not to lay the pieces horizontally, but to place them in a vertical position; for in the latter case the moisture, if there should remain any in them, would issue from the lower ends, following the course of the fibres of the wood. In this state, being well dried, they might be painted or tarred with advantage.

The only objection that can be made to this project, is the expense which the process would occasion; however it is by no means so considerable as to enter into comparison with the immense loss, resulting from the purchase of new timber, from its uselessness after being worked up, and from the construction of vessels which are often condemned before they have rendered any service: an irreparable loss, which cannot be estimated by the value of money.

Moreover, the small building which it would be ne-

cessary to erect for the purpose, would cost but a trifling sum. It would be low, and would be built with very little mason's work. The maintaining of the fire would be attended with no expense, for the fire places could be heated with coal or turf, and the chips and the remains of old timber which may be found to be of no use in the yard could likewise be used. The total annual expense after the shed was put up would consist in the amount of two men's wages to take care of it, and a trifling sum for occasionally shifting the logs.

When we compare our method of preserving timber with that which nature and experience point out, and that adopted by various other nations, when we observe the inconsiderate destruction of trees, which might grow up for the use of the navy; our want of economy in felling and management of timber; the enormous waste in cutting into chips thousands of cubic feet; and lastly when we consider the number of young oak trees, which are cut down for fuel, and which in time might have become very valuable; we cannot help wishing that the management of this important interest was regulated by more correct ideas and principles.

FOR THE AMERICAN FARMER.

THE COST OF PROTECTING DUTIES.

The Analectic Magazine for March 1820, contains a review of the Memorials of the Virginia Agricultural Societies, and of Mr. Carey's "three letters to James M. Garnett, Esq." in reply to their objections to an increase of protecting duties. The memorials are reprehended with much asperity by the reviewer; and Mr. Carey's pamphlet is said to be "worthy the attention of all such as desire to form their opinions impartially on the subject." "His writings have the advantage of being free from the crudeness and looseness as to statistics, that impair the value of so many productions of less experienced champions, of either side." "The advocates of manufactures have plainly the advantage in the field of argument, and have exhibited much more closeness of reasoning, and a far better knowledge of facts, the only kind of knowledge, that on this question can be very availing."

Mr. Ingersoll, by making this unqualified eulogium, has undoubtedly made himself responsible for the correctness of the arguments, statistical facts, and calculations, contained in Mr. Carey's pamphlet. The credit of the reviewer must stand or fall with the credit of the author. Mr. I. is indeed a formidable opponent of our Agricultural Societies: he is a reviewer—has assumed the high station of a censor general of science and literature, an arbiter of men of letters, and on those subjects, a director of public opinion. The very assumption of such high duties, is generally considered as some proof of ability for their performance; and it is therefore probable that the talents of the editor, are not so highly rated by the few who read his magazine, as by the many who do not. The mere expression of his opinion may be injurious to our cause—the arguments in support of it, (by shewing its very slight foundation,) may render us essential service. Therefore, it is of the utmost importance that the judgment and opinions of the reviewer should be held in proper estimation; and for that purpose, as earnestly as himself, I

recommend the attentive perusal of the subjects of his unmeasured praise, Mr. Carey's "Three Letters" and his voluminous "Addresses." Very many of these *statistical facts* and accurate calculations will be found illusory or false, and others present conclusions, directly opposed to what was intended;—one set of arguments serving to overthrow another, and to crown the whole, it is proved beyond dispute, (at the expense of five pages of "statistics" and "close reasoning") that the "experienced champion" and learned reviewer are so completely in the dark on the very subject on which they pretend to throw light, that they are unable to discover in what the *protection* of the manufacturers, really consists; and have fixed on the sum which they lose, for that which they gain! For the proof of this remarkable fact, I submit an abstract of the preface to Mr. Carey's "Three letters," (page xxxii to xxxvii, inclusive.)

"To investigate the foundation of the everlasting theme of taxing the many for the benefit of the few—and the immense debt of gratitude the manufacturers owe their fellow citizens, has become a duty. To place the subject on its true ground, will dispel a dense mist of error and delusion with which it is enveloped." "The whole pretence of this mighty debt arises from the duties on imported manufactures. Those on wines, teas, fruits, &c. of course form no part of it. Let us examine the account.

The entire impost for fourteen years, from 1801 to 1814 inclusive was	\$159,762,602
On Spirits, wines, sugar, salt, teas, coffee, and molasses	\$80,963,813
Sundry articles	7,470,317

Leaving a balance of	\$ 71,328,472
To which add half the last items of sundries, as probably on manufactures	3,735,158

Total on manufactures	\$ 75,063,630
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"This is the whole sum levied on manufactures of every kind, for 14 years, being about \$5,250,000 per annum!—The white population of that period averaged probably about 7,000,000. Of course the duties paid on manufactures amounted to about 80 cents per head! And this is the sum and substance of the "taxes levied on the many by the few," and the immense favours conferred on the few by the many! which have furnished matter for so many tedious speeches in Congress, tiresome declamations at public meetings, and verbose newspaper essays and paragraphs without number."

This calculation is curious enough;—the amount of duties paid into the treasury, is taken for the amount and cost of protection granted to the manufacturers. Thus, the more importation is restrained by high duties, the less protection would they afford, and when they amounted to complete prohibition, the protection of manufactures would not cost a cent!!!—But members of congress and newspaper paragraphists, are not entitled to the credit of having made such profound discoveries. Let the whole honour be paid where it is justly due—for I will venture to assert, that excepting our reviewer and his favourite political economist, no human being ever thought of measuring the

cost of protecting any manufacture, by the amounts of duty received on the importation of like articles. But the cost being thus estimated, it was important to reduce it as low as possible; and therefore a period was chosen in which were comprehended all the interruptions of commerce, caused by the embargo, non-importation acts, and the war with England. With the same accurate and "impartial views, a more particular estimate is then offered of the cost of protecting manufactures, for the year 1819, the intervening years, during which the amount of duties was immense, being judiciously skipped over, as they would have doubled the estimate of cost. According to this calculation the *cost of protecting duties*, for 1819, on all domestic manufactures, amounted to only \$8,131,318, "of which" says Mr. C. "the amount paid by the farmers and planters is not above $\frac{1}{4}$ of a dollar per head, notwithstanding the senseless and illiberal clamour by which their jealousy and hostility have been roused against their suffering fellow citizens."

It is inconceivable how so egregious a blunder could be made as to mistake the amount of tax received for the cost of protection to manufactures. Mr. C.'s own statement sufficiently exposes its absurdity—but as he has through five pages followed the back track, without being able to find the true scent of his game, or discover his error—and as he has been crowned by the reviewer with the "palm of logic," on account of this notable specimen of "statistics"—it will be a sufficient apology for my endeavouring to make the matter so plain, that it cannot possibly be misunderstood.

Duties imposed on imported manufactures, are according to their effects, either duties of revenue, or protecting duties. The greater part now existing, partake of both characters, affording some protection, and yielding some revenue; but the more effectual they are in one way, the less they must be in the other. When a duty is imposed, the imported article rises just so much in price, and allows the domestic manufacture to rise also. As the merchant may still afford to import and sell at the advanced price, the duty may still yield a considerable revenue, which according to the estimates quoted, would be the *cost of protection* to that particular manufacture. Suppose the duty to be gradually increased, until foreign goods can no longer be imported and sold as low as the domestic fabrics: the duty would then yield no revenue, and by Mr. C.'s calculation would afford no protection to the manufacture, at the people's expense;—but in truth the greatest possible protection would then be afforded, and the cost of the indirect bounty, would be the difference between the monopoly price of the manufacture, and the price at which such goods could be imported, if free of duty. In this case the *rate of duty* imposed would be the measure of bounty to the manufacturer, and of loss to the people; and the amount of duty received at the treasury, would be the *gain* of the people, (as they would otherwise have to make up the deficit by other taxes,) and of *loss* to the manufacturer, being so much diminution of a complete monopoly price. The following estimates will shew the immense

difference of result, in my mode of calculation and Mr. Carey's; although by his own account, the bounty paid for one years protection of manufactures, (\$8,138,318) is sufficiently great to cause what he calls "*the senseless and illiberal clamour*" of the farmers, at whose expense it is paid. The sums which I shall state, are suppositions, but the principle is the same, whether they are too high or too low. The duties (and of course the indirect bounties) are certainly put low enough to escape censure, on that score.

Suppose the annual consumption of cotton manufactures in the United States, to be equal to \$30,000,000—that a duty of 10 per cent would give no protection to the home manufacture, and that the whole would be imported: that 20 per cent would operate as a partial protection, and diminish importation one half—and that 30 per cent would prohibit importation, and completely establish the home manufacture.—The different columns of figures below will shew the annual amount of importation, manufacture, rate and amount of duties, and the annual cost of protection, by both modes of calculation.

RATE OF DUTY.	AMOUNT OF IMPORTATION.	AMOUNT OF MANUFACTURES.	AMOUNT OF DUTY.	COST OF PROTECTION BY MR. C.'S ESTIMATE.	REAL COST OF PROTECTION.
10 per ct.	\$30,000,000	none.	\$3,000,000	\$3,000,000	none.
20 do.	5,000,000	15,000,000	3,000,000	3,000,000	\$3,000,000
30 do.	none.	30,000,000	none.	none.	9,000,000

At this rate \$9,000,000 would be the annual cost of protecting the Cotton Manufacture.

annual consumptions, and as such I will take it as the basis of another calculation of the cost of protection. A large proportion, say one third, would be of articles which require no protection, and leaving them out, as unnecessary to the calculations, let us suppose, that on the remaining 200 millions, a duty of 5 per cent would afford no protection—that 10, 15, and 20 diminished importation, and increased manufacturing as stated in the table—and that duties averaging 25 per cent, were exactly equal to the complete protection of domestic, and prohibition of foreign goods.

Rate of Duty.	Amount of Importation.	Amount of Manufacture.	Amount of Duties.	Cost of Protection by Mr. C.'s estimate.	Real cost of Protection.
5 per ct.	\$200,000,000	none.	10,000,000	10,000,000	none.
10 do.	150,000,000	50,000,000	15,000,000	15,000,000	5,000,000
15 do.	100,000,000	100,000,000	15,000,000	15,000,000	15,000,000
20 do.	50,000,000	150,000,000	10,000,000	10,000,000	30,000,000
25 do.	none.	200,000,000	none.	none.	50,000,000

This shews that the cost of completely protecting the manufactures required for our consumption, would amount to \$50,000,000, annually, provided 25 per cent duties, (much less than the present actual rate) would effect the purpose. But perhaps 40 per cent would not be sufficient; and it is owing to that circumstance alone, that the treasury is not actually as empty, as the last place in my column of duties.

In the above tables, the column of manufactures is fixed at the fair value, or what foreign goods might be sold for exclusive of duty—which amount added to the opposite sums under the head of 'Real cost of protection,' will shew the selling or monopoly price. Though they are both blended in the purchase, they are here placed in separate columns, as the price is in fact compounded of these two different ingredients. The duty paid to government, and the bounty indirectly paid to the manufacturers, are also placed apart: adding them together

will shew the whole burthen on the people, under each rate of duty. But in the case where the revenue fails, the same payers of bounties, must be also the payers of direct taxes, equal to the wants of government.

Enough has been said to display the critical acumen, and "*statistical knowledge*" of the editor of the *Analectic Magazine*, and to show that the Agricultural Societies are in no danger of sinking under his attacks. They have nothing to fear from the Edward Ingersoll, that God made—though some apprehension might have been justly entertained of the reviewers that Moses Thomas made.

The enormous amount of bounty paid by the people for the protection of manufactures, as stated in these tables, may appear incredible, when the 'starving' condition of the manufacturers is considered. This difficulty is easily solved. The whole difference between the *real value*, and the *monopoly price* of any article, is indisputably a bounty paid by the consumer, as he receives no consideration whatever in return: but to the manufacturer, it is no more than the fair price of his labour and expenditures, and sometimes even less; because two labourers in Europe, or half a dozen in India, may be employed as cheap as one in the United States. If the manufacturers were enriched, as much as the farmers were impoverished—however every principle of justice might be violated, the national wealth would remain the same. But the effect of the system of monopoly and restriction, is invariably to rob one class of a large sum, that another may receive a smaller; and a loss accrues to the nation, from every transaction of trade.

By way of illustration, let us suppose a direct bounty of \$1 per lb. was offered by the legislature of Pennsylvania, for all the cotton raised in that state. If that sum would be sufficient to compensate the extraordinary labour and expense attending the culture, no doubt cotton enough would be raised for the full supply of the manufacture—but if it did not exceed that compensation, the former would make no more profit, by cotton at \$1 per lb. than by wheat, rye, potatoes and onions, at the usual prices. Yet it is evident that the state would lose 90 cents of every 100 thus expended.

Though I do not myself approve of this project of raising cotton by hot-house culture, it is admirably suited to the doctrines of the political economists of Pennsylvania, and as such, I earnestly recommend it to their serious consideration. If the measure was adopted, their principles would be brought fully into practice, and their own state would reap the whole benefit. All their arguments in favour of forcing manufactures, will apply as well to the forced culture of cotton: for instance, it would afford full employment to the labour of the state, and in that consists national wealth: it would turn the balance of trade, between the southern states and Pennsylvania, so entirely in favour of the latter, that it must speedily be enriched and the former impoverished; and though the crop of cotton would cost the state, ten times as much as it might be bought for, that is not worthy of consideration, as the whole sum would be paid and kept at home; it would really be \$10 kept, in-

It is stated in the "Three Letters, &c." (preface, page xviii) that if our manufactures had been adequately protected, the value of their annual production would now be \$300,000,000. That sum must then be the amount of our an-

stead of \$1 sent out of the state. If my scheme should find favour in the eyes of the philosophers of Philadelphia, the only reward I ask for the suggestion, is, that they will exercise the bounty system at home, and leave the other states and their balances of trade to regulate themselves.

To oppose the advocates of monopoly and restriction, is a labour equal to the greatest performed by Hercules. The enemies of free trade, cannot be compared with the Nemean lion, the many headed Hydra, nor even the robber Caucas: for the destruction of these, it was necessary to encounter resistance, the most formidable and desperate. Our labour is to cleanse the stable of Augeas, filled with the ordure of 30,000 oxen, which requires neither demigod nor hero, but patient, endless drudgery. We can attack any part of the work, and shovel it off with the utmost facility—but the multitude of full fed beasts "with every tail uplifted," will continue to replace the filth as fast as it is removed. Throughout the voluminous publications of the advocates of restriction, it would be in vain to search for any thing deserving the name of argument. They deal in broad assertions and flat denials—state premises to suit themselves and then jump to conclusions, at which they could never arrive in any other way. Doctrines "which have been refuted times out of number," are advanced with as much boldness as self-evident prepositions, and the falsehood which is exposed to-day, will be brought forward to-morrow, as a truth which had never been denied. Contending with such writers, is like contending with shadows: their nothingness is their best protection.

A SOUTHRON.

ORCHARD GRASS AND CHICORY, GOOD SUBSTITUTES FOR CLOVER IN THE SOUTHERN STATES.

From the Southern Patriot.

CHARLESTON, 25th April, 1821.

Mr. Editor—I leave at your office a sample of the Orchard Grass, which, from my trials, appears well worthy the attention of our planters; especially for a Winter and Spring Pasture. The seed was planted in February, 1820, and the grass was but little effected by the severe cold during the late winter and spring. Those feeling an interest relative to the value of this Grass, are referred to Judge PETERS' letter, in the 2d volume of the American Farmer, who remarks—"I dwell much on the *Dactylis*, because I know its value; having constantly sown it for a period of 40 years. All beasts are fond of it, both as pasture and hay.—It is permanent, whilst clover is short lived. It grows in the shade luxuriantly; and hence it is called Orchard Grass.—The English name is Cock-foot. Any soil is suitable, if not wet. A sandy loam of good staple is the fittest." If any of our planters are desirous of having a pasture, which promises to afford a great quantity of food for Sheep—the *Chicory*, which is much extolled in England, as yielding the greatest quantity of grass for these animals, is recommended, as appearing to answer well in our climate, and producing much food: It is not killed by frost till late in the winter vegetates early in March; and would now afford a fine pasture for Sheep. It is said to continue to yield well for many years.

RUSTICUS.

NOTE.—19th May, 1821.

Upon the 16th of May I cut one row of the orchard grass, 16 feet long, which weighed seven pounds in

its green state, and when well cured into hay, one pound. Being planted in rows two feet apart, it yielded at the rate of more than 9500 lbs. of green food; and 1361 lbs. of good hay at this cutting—the land is rich high land; and the grass was cut down, till the 20th of March. One row of the *Chicory*, 24 feet long was also cut, which weighed more than 12 lbs. of green food, this being also planted in two feet rows, has produced at this cutting, at the rate of 10,884 lbs. per acre. This grass being principally intended for Sheep I did not attempt to cure it, but, will observe that Horses kept up (and all working Horses should be;) eat of this grass greedily. I know not if the cured hay of the orchard grass, was a bad turn out or not, viz. to 7 one, but presume, if the grass had been suffered to stand longer, and we had not had so much rain, it would have produced more hay than this proportion.

R.

On the 16th July, 1821 The *Chicory* was cut the 2d time, and produced seven pounds, or at the rate of 6349 lbs. per acre: The Orchard Grass was also cut on the same day—this was six pounds, or at the rate of 8166 lbs. of green food per acre. When well cured into very fine hay it weighed one pound, and one eighth, or at the rate of 1581 lbs. of dry food per acre. So that this second cutting of this valuable grass, though it made less of green food than on the 16th of May, it turned out more of cured hay. From seventeen months culture of this grass, I must conclude, it would be of essential benefit to a southern planter, as a winter, and spring pasture. As yet, our summer has not affected it; and, it is now in a fine growing state, that, which was cut early in May, is as good as that which was not cut since the 20th of March. It appears to answer well, in this State, to cut it every two months, or, to have it eat occasionally with stock. The *Chicory* was not affected by the season, either last summer or this.

R.

Mechanics—THE CIRCULAR SAW so far as I know, is a recent invention, and certainly a very useful one. The Shakers, at their village in Watervliet, near Albany, have this in very excellent use and great perfection. In a saw mill they have a set of machinery on this principle, erected at a very trifling expense, which in cutting stuff for window sash, grooving floor plank, gaging clapboards, &c. with one man and a boy to attend it, will perform the labour of 30 men.

But I saw a new and novel machine in operation in this house, (so full of ingenious machinery) which deserves a place among the most useful discoveries in mechanics of the present day. It is a circular buz, of thin, soft sheet iron, 6 inches in diameter, which cuts the hardest steel almost with the same ease that it could cut tallow. The buz is well secured with cot-trels on an axis turned by a band, and moves with inconceivable velocity, and the engine is so constructed as to secure in a proper position, and bring into contact, whatever you wish to cut. A steel saw mill saw plate was placed in the machine, having the old teeth all taken off, and in four minutes it cut with perfect accuracy 11 teeth—or half cut—for in order to finish the cutting, the saw must be turned in the machine, so as to come work-wise for cutting the other half. With a machine of this kind in perfect order, I should say that the old teeth might all be cut with an old saw mill saw, by a perfectly strait line, and a new set of teeth cut and gaged perfectly, in less than an hour. The cutting is done so accurately, that very little filing is necessary to complete the dressing of

the saw for business. The operation of this machine is a sort of phenomenon in mechanical philosophy.

I saw it in operation in July, 1817, and immediately sent a description of it to the publishers of the new Cyclopaedia, but I do not know whether it has been published. The shakers considering the discovery too useful to be monopolized by a patent, consented to my giving it publicity as public property. Like most others, this discovery was made by accident.—A piece of sheet tin nearly round, was put into a lathe, and a file applied to the edge, in order to dress it down to a perfect circle. The file had no effect on the tin, but the tin cut the file, as in other matters it often happens that the biter gets bitten. Learning this fact, an ingenious young shaker, Freegift Wells, tried the experiment, succeeded, and constructed the machine which I saw. I applied to it pieces of old files, and it cut them in two almost as quick as a candle could have been cut with a hot iron.

[Ballston Farmer.]

THE FARMER.

BALTIMORE, FRIDAY, AUGUST 31, 1821.

PRICES CURRENT.

Flour from the wagons, \$5 12½—Whiskey from do. 27 cts. exclusive of bbl—Wheat, white, 95 to \$100—Red, 88 a 93—Corn, 40 a 42 cts.—Rye, 40—Oats, 13 a 20—Hay, 12 a \$14—Live Cattle, \$5 a 6 50—Cod-fish, per quintal, wholesale, \$3, retail 3 50 a \$4—N. England Beans per bushel \$1 12½—do. Peas, 75 cts.—Plaster in stone \$6 per ton—do, ground, \$1 35 per barrel, 33 cts. per bushel, \$8 per ton—New-Orleans sugar, \$9 to \$12 50—Muscovado, do. 9 a \$12—American White Lead, \$12 50—Ground do. 13 a 14—Linseed Oil, 75 cents—Feathers, 40 a 45 cents—Shad, new, \$6—Herrings, \$2 a \$1 25, declining—Fine Salt, 55 cents per bushel—Ground Alum do 55 a 60—St Ubes, 60—Cadiz, 50 a 55—Turk's Island, 75—Beef, 8 to 10 cts—Hams, 10 a 12 cents—Middlings, 12 cents—Butter, 25 cents—Peas, 50 cents per bushel—Eggs, 12½ cts—Cheese, 8 a 10 cts per pound—Tar \$2—Turpentine, soft, 2½ Cargo prices—2 ms. —Hard, 1 30 to 1 62½ — } credit.
Pitch 2 a 2 25—Rosin, common, \$1 37½ a 1 50—Virginian, 25 cents—Spirits Turpentine, 32 cents per gal.
Virginia and Maryland Tobaccos same as last report—One hhd very fine fired Tobacco, Maryland, and brought \$25

THRASHING MACHINE.

JOSEPH HYDE, inventor of the straw cutting machine, which received a premium at the last Annapolis Agricultural meeting, has completed a THRASHING MACHINE, of 2 horse power. To give a description of this machine would be useless, as there are so many who boast of having the best for sale, suffice to say, it is simple and durable, not liable to get out of order; there is attached to it a STRAW CUTTER and FAN, which is put in operation by the same power. It will be exhibited for 14 days previous to its being disposed of, in the hope of receiving further orders—should there not be a purchaser, he will send it on trial for 4 days (gratis) to any gentlemen in the state. It is so constructed, that a horse can move it from one part of the farm to the other. Farmers not having large quantities of grain to thrash can have the use of this machine at so much per day, or so much per bushel for the quantity thrashed—Price THRASHING MACHINE, \$200—STRAW CUTTER, \$45—FAN, \$20. For particulars, inquire at

JOSEPH P. CASEY'S Seed Store,
No. 2, Hanover-street, next to Barnum's Hotel.